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September 7, 1999

VIA FEDERAL EXPRESS

Todd Thompson
California State Water Resources Control Board
Water Quality Division
901 P Street
Sacramento, CA 95814

Re: Draft Environmental Impact Report – Biosolids Land Application

Dear Mr. Thompson:

On behalf of Kenross Estates, we provide the following comments to the DEIR. We have also enclosed a letter from Dr. Suresh D. Pillai, an associate professor at the University of Texas at El Paso regarding the health risks form aerosolized pathogens arising from land application.

We understand that the scope of the DEIR is limited to land application of biosolids – not composting of biosolids. However, we have also enclosed recent letters by Dr. Alan Jeff Mohr and Dr. Linda Stetzenbach regarding the risks from windblown pathogens at composting facilities. Though composting handles greater volumes of biosolids in a more concentrated area, these reports further help to identify the risks from biosolid application for purposes of further analysis by SWRCB. 40-1

The DEIR fails to identify and address the substantial evidence that application of biosolids can lead to significant health and air quality concerns. 40-2

Air Quality – PM 10 Emissions

The DEIR fails to adequately address the risk of windblown PM 10 emissions. PM 10 emissions can create significant impacts on air quality under certain conditions. Dry biosolids can include large concentrations of fine particulate matter. Empirical evidence indicates that biosolid particulates are easily airborne – even in moderate winds. Once airborne, the biosolids can travel great distances. The potential for such biosolids to become airborne can arise during application, tilling or other incorporation, transportation and storage. Where the volume of biosolids is substantial, a significant impact to air quality can arise. The DEIR fails to make any estimate of potential PM 10 emissions from these sources and therefore can not draw any viable conclusion regarding whether there is a significant impact.

At page 10-9, the DEIR simply states that the "potential exists for wind-blown drift of PM 10 and toxic constituents during application of biosolids and when biosolids are being incorporated into the soil." The report fails to also identify the risk of windblown biosolids during transportation, loading, unloading and storage activities. The report also fails to describe why such emissions will not cause significant impacts. The failure of the DEIR to address these risks further undermines its credibility. 40-3

Without identifying or quantifying the risk, the DEIR suggests that PM 10 emissions would be minimized because storage would be limited to seven (7) days after delivery to the site. There is no discussion, however, about potential PM 10 emissions during those seven days, nor does the DEIR address how such storage practices will limit emissions during the transportation and application of the biosolids.

The DEIR also suggests that the prohibition against visible airborne particulates from leaving the site would limit application to low winds. This is faulty reasoning. It is well established that large visible dust particles ordinarily settle out near the source even during heavier winds (exceeding 12 mph). Indeed, it is only common sense that the larger the particle, the sooner it will settle. But, where wind conditions may only cause the distribution of visible dust particles a few dozen feet, the emission and dispersion of fine particles over large areas, such as PM 10 can be significant. (See Compilation of Air Pollutant Emission Factors, AP 42, U.S. EPA, Fugitive Dust.) Once the fine particles are entrained in the atmosphere, the length of time they can remain entrained is considerable. Hence, limiting visible dust does very little to limit the fine particles, and it's the fine particles, 10 microns and less (PM 10) that have the greatest potential for harm. As discussed below, the biosolid dust particles present an even greater health risk than other particulates because of the potential for pathogens to raft on to biosolid particulates.

Moreover, many of the sites to which biosolids will be applied will be large agricultural parcels. Hence, very heavy winds could cause visible airborne dust to travel hundreds, or even thousands of yards, without violating the discharge order. Such winds could nevertheless cause the entrainment, dispersion and emission of substantial volumes of PM 10 to the general public.

In Carson, California, AeroVironment, Inc. conducted an air monitoring study of a relatively small biosolid composting facility operated by the Los Angeles County Sanitation Districts. That study demonstrated that even under low wind conditions (less than 12 mph) relatively significant volumes of dust and PM 10 can be created from biosolid operations. When conditions exceed 12 mph, such dust and PM 10 are likely to be even more significant. Indeed, as winds exceed 12 mph, the potential for PM 10 emissions increases exponentially. A copy of that study is enclosed herewith. 40-3 (cont)

Air Transport of Pathogens

The DEIR fails to adequately identify and address the risk of airborne pathogens arising from the application of biosolids to land. As the enclosed letter from Dr. Suresh Pillai reports, actual field monitoring at a biosolid application site in west Texas disclosed that infectious concentrations of pathogens can travel downwind for several miles. Dr. Pillai's discovery of infectious concentrations of pathogens several miles downwind from a biosolid operation is evidence enough that biosolids can create a significant impact by causing infections in downwind populations. 40-4

The fact that Dr. Pillai himself rejects the conclusions that the DEIR would draw from his earlier work is reason enough to carefully evaluate the significant risks from airborne pathogens. Dr. Pillai himself believes there is a potential for a significant health risk that must be addressed. We have also enclosed the reports of Dr. Alan Jeff Mohr and Dr. Linda Stetzenbach relating to the risk of air borne pathogens from composting operations.

Additional Requirements to Mitigate Impacts

At a minimum, all biosolids applied to land should meet federal Class A requirements under Rule 503. The discharge order should require that all biosolids being stored and transported be adequately covered; no biosolids be applied or incorporated when average winds exceed 10 mph or gusts exceed 15 mph. Adequate measures must be taken to prevent biosolid particulates from becoming airborne after incorporation. This may include imposing requirements regarding covering of storage piles and fields during high winds or even limiting biosolid applications to areas where winds are not a significant factor. No downwind residence should be any closer than four (4) miles. 40-5

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Air pollution control and air quality management districts must be provided with permitting authority over biosolid operations and should implement such authority and impose those conditions necessary to avoid any air-borne impact on public health or air quality. 40-6

The DEIR wholly fails to identify and address the airborne risks presented by the application of biosolids. The DEIR is completely inadequate in this regard. The risks described above must be more carefully scoped, identified, addressed and mitigated. 40-7

Please address all future notices, correspondence and other matters regarding the discharge requirements or the EIR to my attention:

Very truly yours,

David E. Cranston

DEC:dmt
Enclosures

cc: Jones & Stokes Associates, Inc. (w/o encls.)
Alan Joelson

4900300002-1085484.1

SURESH D. PILLAI, PH.D.

September 5, 1999

California State Water Resources Control Board
Water Quality Division
901 P Street
Sacramento, CA 95814

Dear Board Members:

Kemnross Estates has requested that I review the "air transport" section of the Draft "Statewide program EIR covering general waste discharge requirements for biosolids land application" (DEIR) prepared by Jones & Stokes Associates, Inc., dated June 28, 1999.

I am an environmental microbiologist with many years of both field and laboratory experience and have studied and reported on the issue of pathogen laden bioaerosols around land application programs. I noticed that my research on the land application of biosolids in Far West Texas has been cited quite extensively in the DEIR. I am writing this letter to point out certain inaccuracies in the DEIR as well as to make you aware of some new research data regarding pathogen indicators, aerosolized pathogens and public health risks.

This new research indicates that, under some circumstances, there may be significant health risks from airborne pathogens arising from the application of biosolids to land. During high wind conditions, we detected bacterial pathogens at a site almost four miles from the application site. Furthermore, using aerosol modeling and microbial health risk calculations we estimated that the population at this location would be exposed to a significant health risk.

I have taken the liberty of itemizing and detailing these points:

Mechanical Agitation and Pathogen Aerosolization: The report cites one source (Pahren and Jakubowski 1980) to generalize that wastewater aerosol formation has little impact on air quality. The report fails to mention other important epidemiological studies which have shown higher rates of illness in wastewater workers and refuse handlers (Clark, et al., 1980; Ivens, et al., 1985; Johnson, et al., 1978; Melbostad, et al., 1994; Poulsen, et al., 1995; Scarlett-Krantz, et al., 1987; Sigsgaard, et al., 1994). The report also fails to cite one of my papers (Dowd, et al., 1997) which details the isolation of Salmonella spp. and viruses around biosolid mixing and application sites. This bacterial pathogen was isolated around areas where the biosolid material was agitated as well as around biosolid application sites. Salmonella spp averaged 300 Most Probable Number (MPN)/m3 at the biosolid loading sites and were detected in 27% of the samples. At the application sites, an average of 70 CFU/m3 of Salmonella spp. were detected and these organisms were detected in 7% of the samples. The levels of fecal indicator viruses averaged around 1000 virus units (PFU)/m3 or air. Furthermore, in that same paper we have shown the applicability or reliability of employing thermotolerant clostridia as an indicator of the presence of fecal material in air samples. This is important considering that often the presence of biosolid originating microbial populations cannot be ascertained solely by estimating the levels of

pathogens or traditional indicator organisms such as coliforms or coliphages. It was for these reasons (i.e., the detection of pathogenic bacteria, the detection of fecal indicator viruses and observing large numbers of thermotolerant clostridia) that we recommended that biosolid workers wear protective masks during such operations. It must be emphasized that aerosolization of a wide variety of microbial pathogens will occur whenever biosolids or waste material is handled. The specific pathogen levels and their ultimate transport patterns are, however, dictated by the source material, wind speeds, wind directions, and mechanical agitation. A number of papers have been published over the last few years (Brenner, et al., 1988; Lightart and Shaffer, 1995; Pillai, et al., 1996; Dowd, et al., 1997) documenting that the aerosolization of microbial pathogens is strongly linked to waste application practices, biosolid handling, wind patterns and micrometeorological fluctuations. Predicting the transport of aerosolized microorganisms, however, requires the use of complex mathematical models (Pasquill, 1961; Lightart and Frisch, 1976). These models require inputting variables such as "plume spread factor," "source height," "molecular diffusion coefficients," "microbial inactivation constants," etc and are not a simple undertaking.

Public Health Risks Associated with Aerosolized Microbial Pathogens: The report is incorrect when it states there were no reported cases of bacterial or viral illness during our study. It must be emphasized that we did not investigate the prevalence of infection or disease either among the workers or in the down wind community during our study. One of the primary reasons why published information on this particularly critical issue is missing is because it is prohibitively expensive to conduct such studies. We have, however, employed aerosol transport models to quantify the theoretical health risks associated with aerosolized pathogens using actual sampling data (obtained during high wind speed conditions). The risks were estimated at varying distances from the location where the biosolid material was being agitated. Using conservative estimates and a b-distribution probability model (Rose and Yates, 1998) we calculated that a community located 10 km away from the site would have a yearly rate of 6.5 bacterial infections per 10,000 individuals. The paper detailing these theoretical calculations will be published in the January 2000 issue of the "Journal of Environmental Quality(Dowd, et al., 2000). This level of risk is greater than the current US EPA acceptable levels of infection, which is set at 1 infection per 10,000. It must be borne in mind that at the study site in Far west Texas, care was taken to (a) locate the biosolid application fields downwind from the population center, (b) make sure that the closest population center was at least 4 miles from the application sites, (c) limit the biosolid application to only 3 dry tons/acre/year as a semi-solid cake form, and (d) institute rigorous biological, physical and chemical monitoring of air samples. Even under these stringent conditions (during the high wind season), we detected pathogen levels spike up to 4000 MPN/m3 and have also on occasions detected Salmonella spp. at levels up to 3000 MPN/m3 four miles downwind at the interface of the population center-application sites.

Thus, the points I am trying to emphasize are namely:

1. There is still a significant lack of information on the issue of bioaerosols from biosolid operations. Each and every field site will be different considering the significant differences in source material, application regimens, climatic and meteorological conditions, topography, etc. Comprehensive scientific studies are needed regarding the aerosolization and public health implications of pathogens from biosolid application programs in different settings. The present lack of information should not be taken as an indication that there are no risks.

Thus, Table ES-1 which indicates that the "level of significance" before mitigation is "less than significant" needs to be appropriately modified. Due to the risk of downwind infections, such impacts must be described as significant or potentially significant depending on factors such as volume of biosolids applied, distance to downwind receptors, topographical features and meteorological conditions, particularly wind.

2. In Table ES-1 it is also mentioned that even under composting conditions the "level of significance before mitigation" is "less than significant." I find the issue of composting being lumped in together with land application rather disturbing. There are a number of studies (Russ and Yanko, 1981; Hussong et al, 1985; Haug, 1993) documenting how re-growth the case of Salmonella spp can occur even in composted biosolids. The problems that cause re-growth have not been completely elucidated and are being resolved in many laboratories around the world. It is for this primary reason that extensive microbiological tests are still mandated to verify the non-pathogenicity of the finished product. In a report published by the US EPA it has been shown by Yanko (1988) that out of a total of 208 finished windrow composted samples that were tested for Salmonella spp, this pathogen was found in as many as 57% of the finished composted samples. It is important to keep in mind that any small fluctuation in either temperature; moisture or microbial population levels can quickly induce pathogen proliferation within composted material. What controls pathogen aerosolization in these types of situations is primarily mechanical agitation and what dictates how far they will be transported are the wind speed patterns. Composting operations especially open windrow operations will involve mixing large quantities of fresh and composting biosolids. Thus, there is a strong likelihood that biosolid material and pathogenic microorganisms will become aerosolized. Depending on conditions, these aerosolized pathogens can present a risk of infection to downwind receptors.

I strongly suggest that mention be made in the report that stringent management practices and intensive bioaerosol monitoring programs be instituted to avoid and detect possible aerosolization of biosolid-derived pathogens. Additionally, a notation that data is generally lacking about potential health risks should be included when health risks are mentioned. The present lack of information should not be taken as an indication that there are no risks. Indeed, there may be significant risks as established in our recent study at the Far West Texas site.

Sincerely,

Signature to be provided.

Suresh D. Pillai, Ph.D.

cc. Alan Joelson
David E. Cranston, Esq.

Attachments: Cited References

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Post-it™ Fax Note 7671	Date	# of pages ▶ 2
To Dave Cranston	From Jeff Mohr	
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December 10 1996

Alan J. Mohr, PhD
Chief, Aerosol Technology Branch
U.S. Army Dugway Proving Ground
(801)831-5173 Fax 5716

Subject: Antelope Valley Composting Site, Comments Concerning the Aerobiological Load of Infectious Microorganisms Downwind from the Site

At your request, I have studied the environmental documents generated for the Antelope Valley Composting facility. In addition, I have analyzed several other US Environmental Protection Agency documents concerning risk assessments for viruses, bacteria, and other parasites that are present in municipal sewage sludge. I am troubled about the conclusions drawn concerning the Antelope Valley composting site, particularly those pertaining to air quality (infectious and or pathogenic microorganisms that will be present downwind from this treatment plant). The main issue that presents itself is the probability of increased airborne contamination due to the handling of large amounts of sludge present at the composting site. The probability of infectious particles leaving the site is significantly increased due to the amount of traffic (242 vehicle trips per day) and the meteorological conditions (high, constant wind velocities). Several important issues have not been addressed in the environmental documentation prepared for this site, included are:

- Studies have shown that bacteria and especially viruses adhere to organic matter and are very difficult to assay. In addition, infectious microorganisms on the interior of these rafting airborne particles are provided significant protection from inactivation by the elements. These particles can potentially be carried significant distances downwind and in the Antelope Valley case increase the potential for causing disease.

- A study was performed in January 1993 by a group of experts to assess the risk posed by bioaerosols during composting. Their conclusion was that "composting facilities do not pose any unique endangerment to the health and welfare of the general public". Their findings were based on study sites and conditions that vary significantly from the Antelope Valley location. Important variations not addressed were the high volume of sludge to be handled at the 67 acre site, significant vehicle movement, active turning of compost piles, and high wind velocity profiles measured at the location. These factors will all tend to increase the amount the airborne load of pathogenic microorganisms downwind. Another important point that was not adequately addressed in this report are the difficulties inherent with identifying viruses associated with aerosol particles and composting solids. Many studies have been performed where samples have been spiked with viruses in soils, organic matter, and aerosols; where the efficiency of recovery is often less than 1%. It must be pointed out that because microorganisms, particularly viruses, are not detected in a sample using standard assay procedures, their presence can not be ruled out. The procedures associated with the detection of viruses from environmental samples is primarily a function of the assay. Additional work must be performed using gene probes to detect infectious microorganisms. Gene probe assays provide sensitive and specific identification of microorganisms while not relying on viability.

- The models from which most of the conclusions of this study are drawn are incomplete. Most of the models are based only on simple Gaussian diffusion and do not take into account other important factors. It is critical that values for biological decay and the relationships of temperature, relative humidity, solar irradiation, and aerosol age be incorporated into the models. The need for complete well thought out models is critical. It is risky to draw conclusions based on simplistic models.

Many conclusions have been drawn from data collected when applying sewage sludge to land for agricultural purposes. When sludge is managed at a composting site there is a much greater risk that microorganisms will be transported downwind. This is especially the case as Antelope Valley due to high volumes of material, significant vehicle and sludge turning activities, and high wind speeds. The concentration of these deleterious microorganisms are orders of magnitude higher in sewage sludge than would be observed over agricultural land treatment. Additional studies must be performed to assess the aerobiological risk associated with high volume sludge treatment facilities. It has been shown that the occupational risk for workers is significant at sites much smaller than Antelope Valley. At the very least, several precautions should be taken to minimize the transport of bioaerosols from the site. Engineering controls including construction of wind breaks and berms which would decrease turbulence and hence increase particle settling (these controls may not work here because of the uncommonly high and consistent winds measured at the site). An action that is highly recommended and that would address most of the concerns associated with the compost site would be the **construction of an enclosure** to cover the site. With an enclosure, odors (carbon filters), pathogenic bioaerosols (HEPA filters), temperature (heaters), and moisture (dryers), could be controlled with a high degree of precision. This action would also enable constant monitoring of the composting process so that quality control could be maintained. It is also recommended that aerobiological monitoring of infectious organisms be conducted using gene probes and the polymerase chain reaction (PCR) to assess the potential risk for site workers and people living down wind from the Antelope Valley compost facility.

Alan Jeff Mohr, PhD
Chief, Aerosol Technology Branch
Dugway Proving Ground

ALAN JEFF MOHR

10 December 1996

Chief, Aerosol & Environmental Technology Branch
U.S. Army Dugway Proving Ground
Dugway, Utah 84022

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Education:

B.S. 1977; Utah State University, Logan, Utah; Major-Biology, Minor-Chemistry

M.S. 1981; Utah State University, Logan, Utah; Biometeorology Thesis-Direct Solar Irradiance in the Rocky Mountains at 40 Degrees Latitude

Ph.D. 1984; Utah State University, Logan, Utah; Microbiology Dissertation- Aerosol Stability of Reovirus

Research and Testing Experience:

Dr. Mohr's research experience has dealt primarily with the aerobiology of toxins, microorganisms, and biological simulants. During the past fifteen years, expertise has been acquired through the management of several large scale field trials [Biological Integrated Detection System (BIDS), Chemical Biological Mass Spectrometer (CBMS), Limited User Test (BID/LUT)]), methodology development, and laboratory testing of biological defense materiel. This background has established Dr. Mohr as an authority in the field of aerosol generation and collection. These types of studies require a thorough understanding of the physical factors which regulate airborne particles as well as the biological mechanisms that influence the aerosol stability of microorganisms. Dr. Mohr has taken the lead in applying the latest technology for characterizing aerosols with respect to particle size, mass and number concentration and viability. His laboratory aerosol background includes experience manipulating T-2 toxin, Botulinum toxin, Staphylococcal enterotoxin B, *Bacillus anthraces*, *Coxiella burnetii*, and *Yersinia pestis*. He has been actively involved in the design criteria for the Life Science Test Facility which included establishing engineering specifications for the biosafety level 3 aerosol challenge chamber, mixing tube, and related aerosol testing laboratories. Dr. Mohr has authored/presented over thirty technical publications dealing primarily with bioaerosols. Dr. Mohr has visited Iraq three times, acting as Chief Inspector twice, representing the United Nations Special Commission (UNSCOM) assessing the microbiological capabilities in Iraq. Dr. Mohr recently edited a text entitled "Atmospheric Microbial Aerosols: Theory and Applications" and is currently writing a chapter on "Fate and Transport of Airborne Microorganisms" for the American Society for Microbiology.

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40-1. The risks from windblown pathogens at composting facilities and the concerns about the greater volumes of biosolids being handled in a more concentrated area was addressed in the draft EIR. Of particular concern with regard to composting is the generation of fungi, some of which can be pathogenic to sensitive individuals (*Aspergillus* spp.). Pages 5-13, 5-14, and 5-26 describe the issues related to composting; a more detailed discussion on pages E-25 through E-28 identifies the specific concerns and measures typically taken to reduce health risk. Composting facilities and related permitting issues are addressed by other permitting agencies, such as the local air quality management district and the California Integrated Waste Board, and each county's designated local enforcement agencies. The need for mitigation measures to prevent material at compositing facilities from blowing in high wind areas is subject to environmental review under CEQA for individual facilities along with site-specific permitting conditions. Also see Response to Comments 40-2, 15-1, and 15-2.

40-2. The draft EIR identifies and addresses the substantial evidence that application of biosolids can lead to significant health and air quality concerns. There is no substantial evidence showing this is a "significant" health or air quality concern. There is evidence that it is prudent for workers at composting facilities or mixing and loading facilities to take preventive measures to minimize exposure (See Responses to Comments 40-1 and 40-4). A new mitigation measure (Mitigation Measure 5-3) has been proposed to address worker exposure and minimize potential risks from aerosolized material.

40-3. The commenter is correct that winds acting on dry biosolids can generate dust. However, revisions to the GO, specifically moisture content requirements, are designed to eliminate fugitive dust emissions from biosolids handling, storage, and application. Also see Master Response 9. The proposed transportation, loading, unloading, and storage of biosolids are unlikely to result in significant releases of windblown material due to the 50% or greater moisture content required by the GO. Consequently, no attempt was made to estimate emissions from windblown material. Also, biosolids, which can be stored on site for up to 7 days, must be covered if stored for more than 24 hours, further reducing the likelihood of windblown drift.

The AeroVironment study referred to by the commenter was reviewed. However, that study contained no information on the moisture content of the composting facility. Consequently, it is not possible to compare the results of that study to what would occur under the GO. The AeroVironment report does state that when sludge is managed at a composting facility, there is a much greater risk that microorganisms will be transported downwind. This is because of several factors, including frequent compost-turning activities and the fact that the concentration of deleterious microorganisms is orders of magnitude higher than would be observed in land application.

40-4. The commenter states that the draft EIR fails to adequately identify and address the risk of airborne pathogens arising from the application of biosolids to land. As the letter from Dr. Suresh Pillai (submitted along with the comment letter) reports, actual field monitoring at a west Texas biosolid application site disclosed that infectious concentrations of pathogens can travel downwind for several miles.

The comment letter also states, "The fact that Dr. Pillai himself rejects the conclusions that the draft EIR would draw from his earlier work is reason enough to carefully evaluate the significant risks from airborne pathogens. Dr. Pillai himself believes there is a potential for a significant health risk that must be addressed. We have also enclosed the reports of Dr. Alan Jeff Mohr and Dr. Linda Stezenback related to the risk of air borne pathogens from composting operations."

There are several different types of biosolids management programs that are lumped together in the commenter's concerns. The field monitoring work performed in Texas is for a large-scale liquid spraying operation using large "big-gun" sprayers that put liquid biosolids up to 100 feet into the air. There is no doubt that aerosols are formed under such conditions. No such operations occur in California and none are anticipated.

Dr. Charles Gerba, an adviser to the EIR preparation team, authored with Dr. Pillai a paper about the Texas study. The paper will be published in early 2000. Dr. Gerba indicated that the Texas conditions and operation are far different and not applicable to the type of land application operations conducted in California (Gerba pers. comm.).

The impacts of composting operations on workers and the surrounding community were discussed in the draft EIR (pages 5-35 and 5-36) and Appendix E (page E-25 and E-26). Additional information was presented in the Response to Comment 15-2.

Chapter 5 of the EIR is modified to include the following on page 5-36 after the last paragraph:

> It is noteworthy to add that research on this issue is continuing and that the present lack of information or reported disease associated with exposure to aerosols near biosolids land application sites should not be taken as an indication that there are no risks. Everything that humans do has risks, but as stated in the draft EIR, these risks are considered less than significant for the general population. For active workers in the vicinity of biosolid mixing and application sites, it can be anticipated that exposure to higher levels of potential aerosols (mainly fine particles to which pathogenic microorganisms could attach) is likely.
>
> Under high wind conditions or when Class B biosolids or certain compost products are loaded or spread, there may be exposure of applicators or workers to aerosols or dusts that can contain potentially viable pathogenic

microorganisms. To date, health risks are not deemed to be significant; therefore, this impact is considered less than significant. However, the following mitigation measure is recommended and is not required to reduce the level of significance for this impact.

Mitigation Measure 5-3. As part of good management practices, it is recommended that workers who are loading or working near sites where Class B biosolids are mixed or loaded or are applied by surface spreading wear respirators or masks to protect against inhalation of aerosols or fine particles derived from the biosolids being handled.

This additional text and new mitigation measure do not change the conclusion made in the draft EIR with regard to workers involved in the handling or application of Class B biosolids.

40-5. Several modifications made to the GO are designed to eliminate windblown dust from biosolids processing operations. Limiting biosolids application during high winds was considered for incorporation into the GO. However, because of several factors, wind speed limitations were not included. Instead, other imperatives, such as requiring elevated biosolid moisture content, were added in lieu of wind speed restrictions. See Master Response 9.

40-6. Air districts in California generally do not have permitting authority over biosolids operations. A state law or individual air district regulations would need to be enacted to provide districts with the authority to permit biosolids operations. It would also be difficult to enforce such a measure because biosolids application at any one site is applied no more than a few days per year.

40-7. The airborne risks associated with biosolids are described in the Chapter 5 discussion on public health. Chapter 5 includes a discussion on the potential for increased incidence of acute or chronic disease resulting from human exposure to aerosols and windblown particles from biosolids stockpiling, composting, or land application. In addition, several responses to comments on the draft EIR address the airborne risks associated with biosolids (see also Responses to Comments 4-16, 12-3, 26-24, 28-10, 41-2, and 52-1).